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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/766,340	01/28/2004	Kishiko Itoh	JP920020222US1	3300
53493	7590	06/27/2006		
LENOVO (US) IP Law Mail Stop ZHHA/B675/PO Box 12195 3039 Cornwallis Road RTP, NC 27709-2195			EXAMINER THOMAS, SHANE M	
			ART UNIT 2186	PAPER NUMBER

DATE MAILED: 06/27/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/766,340	ITOH ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Shane M. Thomas	2186	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 28 January 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 15 and 16 is/are allowed.
- 6) ☒ Claim(s) 1-7, 9-14, 17 and 18 is/are rejected.
- 7) ☒ Claim(s) 8, 19 and 20 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 January 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☒ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>1/28/04</u> . | 6) <input type="checkbox"/> Other: _____  |

### **DETAILED ACTION**

This Office action is responsive to the application filed 1/28/2004. Claims 1-20 are presented for examination and are currently pending.

In the response to this Office action, the Examiner politely requests that support be shown for language added to any original claims on amendment and any new claims. That is, indicate support for newly added claim language by specifically pointing to page(s) and line numbers in the specification and/or drawing figure(s). This will assist the Examiner in prosecuting this application.

Excerpts from all prior art references cited in this Office action shall use the shorthand notation of [column # / lines A-B] to denote the location of a specific citation. For example, a citation present on column 2, lines 1-6, of a reference shall herein be denoted as “[2/1-6].”

### ***Priority***

Acknowledgment is made of applicant's claim for foreign priority under 35 U.S.C. 119(a)-(d). Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

### *Specification*

The specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

### *Claim Objections*

Claims 17-20 are objected to because of the following informalities:

As per claims 17 and 19, the claims include limitations for a "computer usable medium"; however, no such term is adequately described in Applicant's specification. The Examiner recommends amending the aforementioned phrase to read "computer readable recordable medium" or the like, as appears in Applicant's specification on page 9, lines 16-26. Applicant is reminded of 37 C.F.R. 1.75 (d)(1) which states that the claim or claims must conform to the invention as set forth in the remainder of the specification and the terms and phrases used in the claims must find clear support or antecedent basis in the description so that the meaning of the terms in the claims may be ascertainable by reference to the description.

*Claim Rejections - 35 USC § 112*

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-5 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

As per claims 1 and 4, as term --developed-- is not a recognized term of art when in used in relation to the description an application in a memory, a search of Applicant's specification was performed in order to ascertain the meaning. However, Applicant's specification sets out two distinct definitions for the term --develop--. In page 5, lines 6-8, the term --develop-- appears to mean "changing," "modifying," "altering," or "adding," while page 5, line 23 to page 6, line 2 and page 6, lines 10-13, the term --develop-- appears to mean either to "run" (as in running the application) or to "copy the application to a memory." Additionally, page 14, lines 13-15, appear to set forth the definition of --develop-- to indicate that a program is moved/copied/transferred to another memory before being executed and then executed. Nonetheless, for the purposes of examination, the Examiner has considered the term --develop-- with the later definition found on page 14, lines 13-15.

Claims 2,3, and 5 are rejected as being dependent upon a rejected base claim.

*Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claim 4 is rejected under 35 U.S.C. 102(e) as being anticipated by Raves et al. (U.S. Patent Application Publication No. 2003/0182500).

As per claim 4, Raves teaches a **storage device for retaining data 130 (figure 3) where in the storage device includes: a first partition 131 which operates in a user environment** (user is accessing the system and partition is booted originally - ¶26), and **a second partition 132 different from the first partition, the second partition storing applications (APP 1 and APP 2 as shown in figure 3) requiring write protection (¶26).** Further Raves teaches **wherein the second partition includes an unoccupied area (i.e. area in which to store writes as the second partition is unlocked and able to accept writes from the Applications 1 and 2) in which a specific application (either application 1 or 2) is able to be developed (i.e. copied [via the mirror creation - ¶26] and run as APP 1 and APP 2 are taught to be in ¶26) when the specific application is executed from among the applications requiring write protected (as explicitly stated in ¶26).**

*Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1 and 3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Milne et al. (U.S. Patent No. 6,711,660) in view of Bonnett et al. (U.S. Patent Application Publication No. 2003/0051090). Further the prior art reference of Hennessy and Patterson (herein Hennessy) is being relied upon to simply show inherent features of the Milne reference not explicitly described or discussed.

As per claim 1, Milne teaches **a storage device 14 (figure 1) including a user area 18 (figure 2) which operates in a user environment [4/54-64] and a hidden area 56 (figure 2) which stores an application (PC Services diagnostic tool - [5/57-58])**. Milne does not specifically teach the application of PC Services **requiring write protection**. Bonnett teaches that a memory device comprising a hidden partition is beneficial to store programs and software therein because the hidden partition prevents the user from deleting or corrupting portion of the program or software (§32 and §37). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have combined the hidden partition system of Milne with the teaching of Bonnett of write protecting programs by storing them in a hidden partition in order to have prevented a user from deleting or corrupting the diagnostic and recovery tools that are contained in the PC Services program of Milne (figure 5). Such a

modification of Milne would have allowed the system of Milne to have been able to restore and repair a given system by restoring a user system image from the hidden partition, for example (figure 7) without fear of the user accidentally deleting or corrupting that backup image (§32 and §37 of Bonnett).

Milne further teaches **memory 17 (figure 1) coupled to said storage device and configured to be able to develop the application stored in the hidden area of the storage device** [5/40-44] and [5/57-58]. The former citation teaches that the definition of “loading and executing” comprises reading into the system memory the located data that is to be executed and then executing it, whereas the later section teaches that the PC Services application is capable of being loaded and executed. Thus it can be seen that Milne teaches that the system memory 17 can load and run the application stored in the hidden partition of the storage device.

Modified Milne does not specifically teach **the memory providing a virtual disk space**; however, such functionality (i.e. using system memory as virtual memory) is well known and practiced in the art. Hennessy teaches such methods in pages 579-586 (specifically figures 7.20 and 7.23). Therefore, it would have been obvious to one having ordinary skill in the art to have seen with the disclosure of Hennessy that the system memory 17 of modified Milne would have indeed provided a virtual disk space [to the PC Services application].

As per claim 3, Milne teaches **wherein a boot from the hidden area in the storage device is executed with support of a basic input/output system (BIOS)** in [4/9-19] and figure 4. The citation teaches that BIOS is used to boot a system (as well known and common in the art) while figure 4 clearly shows that a boot to the hidden partition of the hard drive may occur (steps 128-130). Refer also to [6/15-19].



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Claims 2, 3, 6, 7, 9-14, 17, and 18, are rejected under 35 U.S.C. 103(a) as being unpatentable over Milne et al. (U.S. Patent No. 6,711,660) in view of Bonnett et al. (U.S. Patent Application Publication No. 2003/0051090), as applied to claims 1 and 3 above, in further view of Applicant's Admitted Prior Art, herein "APA." The prior art reference of Hennessy and Patterson (herein Hennessy) was previously relied upon to simply show inherent features of the Milne reference not explicitly described or discussed therein.

As per claim 2, modified Milne teaches a hidden partition that is inaccessible to a user under normal operating conditions where a native maximum LBA is used when defining the overall size of the storage device (figure 2 and [4/1-16]), similar to the PARTIES specification for a hidden partition as discussed in Applicant's specification (page 2, lines 7-16); however, modified Milne does not specifically teach **wherein the storage device meets a specification selected from the group consisting of the Protected Area Run Time Interface Extension Services (PARTIES) specification and a standard specification conforming to the PARTIES specification, and wherein the hidden area is a PARTIES partition.** However, APA teaches that the PARTIES partition may comprise a preloaded image of the operating system as well as information required for setting of hardware, setting of a password, description of a boot sequence, and the like, instead of the ROM. Such an alteration to modified Milne would have resulted in the enabling of setup work for a user, which uses a graphical user interface (page 2, line 17 - page 3, line 3). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have combined the system of modified Milne with the teaching of PARTIES partition of the APA in order to have recovered

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from a corrupt operating system image that would not allow an operating system to load properly in the user environment (by loading the recovery image stored in the PARTIES partition).

As per claim 3, APA specifically teaches on page 2, line 17 - page 3, line 5, that the hidden partition can be booted from with help from the BIOS.

As per claim 6, Milne teaches **an external storage device 14 (figure 1) which is able to form a first area operating in a user environment [4/54-64] and a second area which is a user-hidden area 56 (figure 2) as well as a BIOS ([4/9-19] and [6/15-19]) which supports the booting of a predetermined application (PC Services - figure 4) among other applications (such as a backup of the operating system that is stored with the user system image - figure 7 and [6/43-47]) stored in the second area, and a memory 17 which is coupled to the external storage device (as shown in figure 1) and said BIOS (as inherent) and which stores code which operates on said external storage device and said BIOS when executed (as the memory is taught to be loaded with the boot manager program which involves the selection of which partition to boot from - [5/25-44] and further discussed in relation to APA on page 2, line 17- page, line 5).**

Milne further teaches **virtual application area forming code** (part of the code of the boot manager program that is responsible for loading the PC Services software [figure 5, step 130]) **which copies the predetermined application onto a predetermined area of an unoccupied area in said memory** (inherently the area must be unoccupied as the PC Services application is being loaded into the memory in order to be executed - [5/57-58] and [5/40-44] - refer also to the discussion of claim 1 above) **which forms a virtual application area when the predetermined application is the validated application** (as discussed above in the discussion

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of claim 1 where Hennessy teaches that the system memory is utilized as virtual memory when applications are loaded therein). Further, it can be seen from the teachings of Hennessy and the discussion above in the rejection of claim 1, that an **access to the predetermined application is performed in the virtual application area** (i.e. virtual memory created when the PC Services application is loaded in the system memory).

Bonnett teaches that the system of modified Milne comprises **validation code** (i.e. code that is running on the secure program upgrade utility 214 - ¶42) **which validates the predetermined application** (i.e. at least the portion of the program that is being updated as part of the update file 213 - ¶42) **for a system vendor authentication** (i.e. product identification - ¶42). Refer to ¶¶40-45. It is noted that the Examiner is considering the code of the secure program update utility 214, as it inherently must be stored on a memory in order be executed by controller 202, is contained on the memory 17 of modified Milne, as memory 17 comprises all processes that access the hidden partition [5/40-44] and [5/57-58].

As per claim 7, it would have been obvious to one having ordinary skill in the art to have seen at the time the invention was made for the **virtual application forming area code** of the system of modified Milne to have **detected the size of the predetermined application and searched and secured the predetermined area of the memory [5/57-58]** in order to have been able to run the PC Services from the memory. Such a modification would have allowed the program to have been executed quickly, as it is well known in the art that system memory 17 has much less latency than external storage device 14.

As per claim 9, the rejection follows the rejection of claim 6, as previously set forth (the Examiner is considering the host protected area of the claims to be the hidden partition 56 of the

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Milne reference. Lines 2-3 follow the rejection of claim 6, lines 2-3 and lines 4-6 follow the rejection of claim 6, lines 4-5 and 9-10. As per lines 7-11, Milne teaches an **application access module** (host processor 16 - figure 1) **that is coupled to both said storage device 14** (as shown) **and said BIOS** (as is inherent and well known that the processor begins boot-up of the system by accessing and executing the BIOS code) **which copies** (as the processor is known in the art as being responsible for loading data from the hard drive 14 to the system memory 17) **the application in the host protected area 56 onto an unoccupied** (inherent as discussed above in claim 6) **area of another memory 17 [5/57-58] thus generating a virtual application area** (as also discussed above with relation to Hennessy).

As per claim 10, modified Milne teaches that the **BIOS manages a private key** (i.e. a hash function) as taught in the APA (page 3, lines 6-9, and lines 19-22). Further modified Milne teaches that the **BIOS manages an access to the host protected area 56** by way of a selection mechanism described in [5/25-60] for example. Further, the APA teaches on page 2, lines 17-22, that the BIOS is responsible for booting to an accessing the hidden partition area (which is being considered to be the host protected area 56 of Milne).

As per claim 11, modified Milne teaches that the **BIOS manages an access to the host protected area 56** by way of a selection mechanism described in [5/25-60] for example. Further, the APA teaches on page 2, lines 17-22, that the BIOS is responsible for booting to an accessing the hidden partition area (which is being considered to be the host protected area 56 of Milne).

As per claim 12, because it is beneficial to write protect the recovery/diagnostic software by storing it in the hidden partition (§32 and §37 of Bonnett) as discussed above in relation to

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claim 1, it would have been seen by one having ordinary skill in the art that the **application access module** (system processor 16 of figure 1 of Milne) **would have determined that the program was write protected** (as it is stored in the hidden partition - [4/54-56]) **and when the application is accessed, accesses the virtual application area** (as it is well know in the art and discussed in the citation of Hennessy throughout pages 579-586) by accessing the system memory instead of the hidden partition, as the PC Services application is loaded into the system memory - [5/57-58] of Milne.

As per claim 13, Milne teaches **unlocking** (by means of a predetermined key sequence from a user - [5/51-58]) **a second area** (hidden partition 56) **when booting a predetermined application** (PC Services) **from the second area of a storage device 14 having a first area** (partitions 52 and 54) **which operates in a user environment** [4/54-64] **and the second area which is an area hidden from the user** [4/54-56], **reading the predetermined application from the unlocked second area** [5/57-58], **locking the unlocked second area** (by simply booting the normal operating system by selecting, for example, the third option of figure 9A of Milne - as the hidden partition is not accessible to the user and hence "locked" once the normal OS is booted as previously discussed), **copying the read predetermined application onto a virtual application area** (as previously discussed above and among [5/57-58] and Hennessy) **formed in an unoccupied** (inherent as previously discussed) **on another memory 17** (system memory), **reading a first code for booting** (code which performs the method step 130 of figure 4 of Milne) **the predetermined application from the virtual application area** (since the application is taught in [5/57-58] for being loaded and executed, where executing involved being booted first as discussed in [6/14-42] of Milne).

As per claim 14, modified Milne teaches **determining whether the predetermined application is the second area is an application validated by a system vendor** (via code running on the secure program upgrade utility 214 - ¶42 taught by Bonnett that validates the predetermined application [i.e. at least the portion of the program that is being updated as part of the update file 213 - ¶42] for a system vendor authentication (i.e. product identification - ¶42), refer to ¶¶40-45). Further, such a vendor authentication is taught by the APA on page 3, lines 2-22. Further, Milne teaches **determining whether write protection is required** (since the PC Services application is contained in the hidden partition [4/54-56], the application requires write protection as is the reason for storing the application in the hidden partition - discussed in ¶32 and ¶37 of Bonnett) **for the predetermined application when the predetermined application is the validated application** (once validated by the vendor authentication of Bonnett or the APA). In other words, once the portion of the application to be updated is verified by the vendor as discussed by Bonnett (¶42), it can then be determined, as the entire PC Services application is contained in the hidden partition, that the application requires write protection.

As per claim 17, as all methods must inherently be comprises of instructions, the method of figure 4 of Milne must therefore be contained on a --computer usable medium-- (such as the BIOS) storing program code to allow the system of modified Milne to function according to figure 4. The rejection of lines 5-7 follows the rejection of claim 13, lines 2-4 as set forth above; the rejection of line 8 follows the rejection of claim 13, line 5, as set forth above; the rejection of line 9 follows the rejection of claim 14, lines 2-3, as set forth above; and the rejection of lines 10-12 follows the rejection of claim 13, lines 6-8 as set forth above.

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As per claims 18, the rejection follows the rejection for claim 13, lines 9-10, as set forth above.

Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Raves et al. (U.S. Patent Application Publication No. 2003/0182500) in view of APA.

As per claim 5, Raves does not specifically teach the **second partition being a PARTIES partition**. APA teaches that a PARTIES partition may comprise a preloaded image of the operating system as well as information required for setting of hardware, setting of a password, description of a boot sequence, and the like, instead of the ROM. Such an alteration to modified Milne would have resulted in the enabling of setup work for a user, which uses a graphical user interface (page 2, line 17 - page 3, line 3). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have combined the system of Raves with the teaching of PARTIES partition of the APA in order to have been able to have recovered from a corrupt operating system image that would not allow an operating system to load properly in the user environment (by loading the recovery image stored in the PARTIES partition).

Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Milne et al. (U.S. Patent No. 6,711,660) in view of Bonnett et al. (U.S. Patent Application Publication No. 2003/0051090), in further view of APA, as applied to claims 2, 3, 6, 7, 9-14, 17, and 18, above, in further view of Cheston et al. (U.S. Patent No. 2003/0014619). The prior art reference of Hennessy and Patterson (herein Hennessy) was previously relied upon to simply show inherent features of the Milne reference not explicitly described or discussed therein.

As per claim 10, modified Milne teaches (as discussed above in the rejection of claim 11) the **BIOS managing an access** ([5/25-60] of Milne and/or page 2, lines 17-22 of the APA) to the **host protected area** (hidden partition 56). However, Milne itself does not specifically teach the **BIOS managing a private key**. Cheston teaches that a BIOS initialization sequence for a computer may comprise an administrative password verification step (private key) - figure 3, step 56. Paragraphs 26-31 teach how the BIOS uses the MBR to boot the given system and ¶¶34-36 teach how the private key must be entered to access a hidden partition. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have combined the system of modified Milne with the teaching of password protecting the recovery setup utility contained in the hidden partition of Cheston in order to have (1) given the administrator of the computer system the ability to recover the system remotely, without having to be physically near the system to be recovered (by means of a LAN connection - ¶38) and further (2) to only allow administrators the exclusive right of recovering the system so the user would not corrupt or further damage the system.



*Allowable Subject Matter*

Claims 15 and 16 are allowable over the prior art of record; claims 19 and 20 are objected to for the reasons set forth above in the Claim Objections section of this action, but are otherwise allowable over the prior art of record.

Claim 8 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

As per claim 15 and 19, the prior art of record does not specifically teach, either alone or in combination, all of the limitations of the claims.

Claims 16 and 20 are allowable as being dependent upon allowable base claims.

As per claim 8, the prior art of record does not specifically teach, either alone or in combination, each limitation of the claim, specifically that the BIOS is responsible for unlocking the second area and then forming virtual application area in the second area.

*Conclusion*

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shane M Thomas whose telephone number is (571) 272-4188. The examiner can normally be reached M-F 8:30 - 5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matt M Kim can be reached at (571) 272-4182. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Shane M. Thomas



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